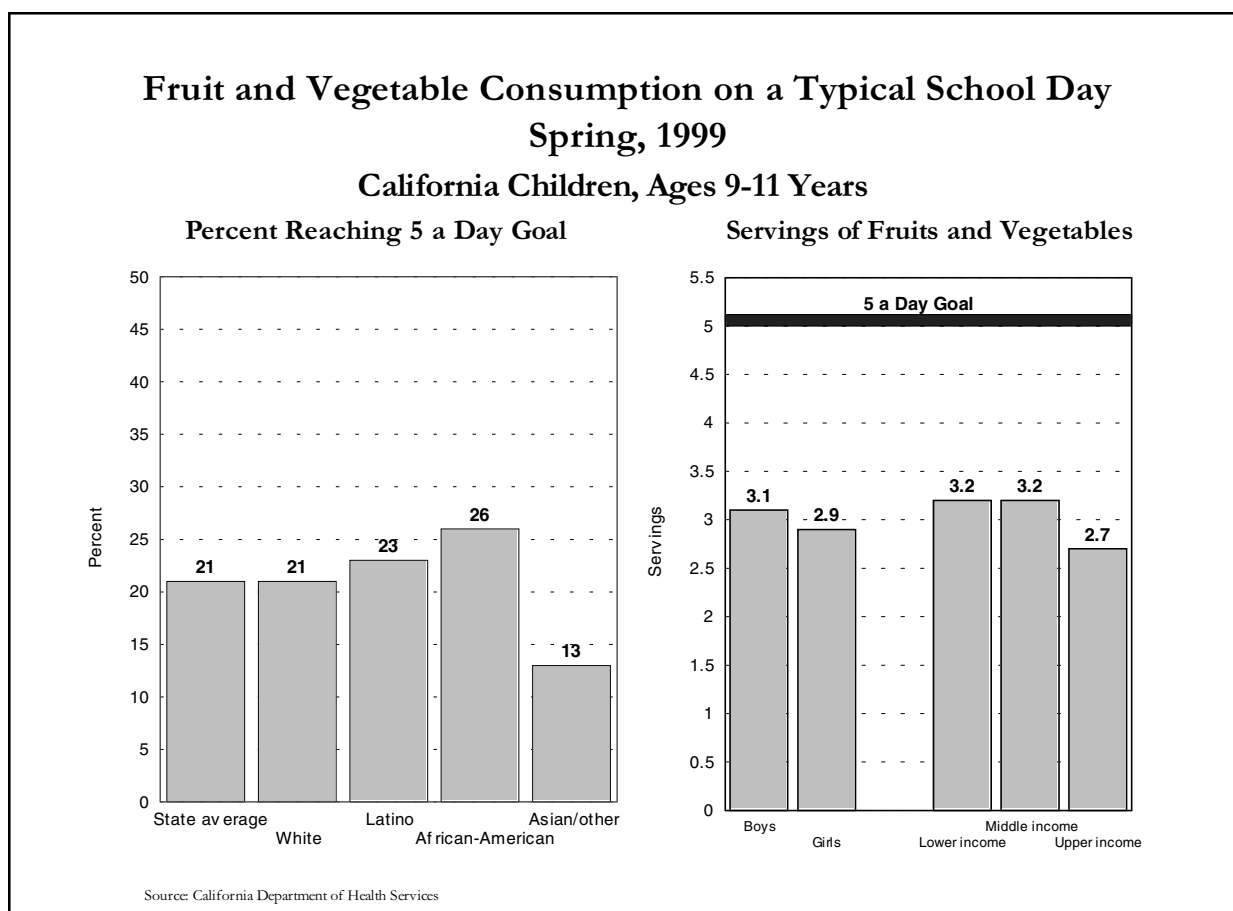


Special Report to the American Cancer Society

1999 California Children's Eating and Exercise Practices Survey: Fruits and Vegetables, A Long Way to Go



“One’s personal lifestyle is of profound and overriding importance in determining one’s health status and one’s chances for a full and complete life.”

John R. Seffrin, PhD
Chief Executive Officer, American Cancer Society



California 5 a Day—for Better Health! Campaign
and the
Public Health Institute



The California Children’s Eating and Exercise Practices Survey

The first California Children’s Eating and Exercise Practices Survey (*CalCHEEPS*) was conducted from April 21 to June 28, 1999. The findings on fruit and vegetable consumption are alarming. This is a special early bulletin that will be followed by a report on the findings of the survey as a whole.

Fleishman-Hilliard Research and the Public Health Institute performed *CalCHEEPS* under contract. The survey was funded by The California Endowment and the United States Department of Agriculture. A mailing was sent to a demographically balanced sample of 2000 California market research panel members from throughout the state who have a 9- to 11-year-old child in their household. Parents were asked to assist their child in keeping a two-day diary of foods they ate and the physical activity they had done on two consecutive, typical school days. For the dietary portion of the survey, families recorded the types and number of servings of nine food groups, including fruits and vegetables, children had consumed for each of six daily eating occasions. Parental permission was secured for all participants. Eight hundred fourteen children completed this part of the survey by the June 8 deadline. The sample of 814 had a sampling error of ± 4 to 5 percentage points at the 95 percent confidence level. A sub-sample of 394 children took part in a follow-up non-assisted telephone survey on their knowledge, attitudes, and beliefs about healthy eating and physical activity. The response rate was 41 percent for the diary and 51 percent for the telephone survey.

Fruits and vegetables: essential foods for good health¹

Diets containing lots of fruits and vegetables may reduce risk of:

- | | |
|-----------------------|--------------|
| • Cancer | • Stroke |
| • Heart attack | • Diabetes |
| • High blood pressure | • Cataracts |
| • Diverticulosis | • Asthma |
| • Osteoporosis | • Bronchitis |
| • Arthritis | • Obesity |

The evidence that eating fruits and vegetables reduces the risk of many diseases is compelling. A large body of research presents a strong relationship between diets high in fruits and vegetables and a reduced risk of cancer, especially of the lung, stomach, and colon. In addition, eating more fruits and vegetables appears to reduce the risk of a number of other diseases.

About the sample

The 814 participants were almost evenly divided between boys and girls. Forty-three percent were white, 38 percent Latino, 7 percent African-American, and 11 percent Asian/other. The white sample was comparable to households from the 1998 Current Population Survey of California (CPS) in terms of age, household income, and household size. The head of households in the minority samples tended to be younger. The mail and telephone survey results were weighted to reflect the CPS for children ages 9 to 11 based on race, household income, and number of children in the household between the ages of 9 and 11. Most children were in the fourth and fifth grades.

Twelve percent of the children came from households receiving food stamps, 18 percent came from households with less than a \$20,000 a year income, and 44 percent came from households with an annual income of \$50,000 or more. Almost nine out of ten children attended public school. One in six ate school breakfast, and more than six out of ten ate school lunch on the days surveyed. Eight out of ten children reported being physically active for 30 minutes or longer on the survey days. Over 90 percent of the children reported height and weight. Of these, one-third were overweight or at risk for overweight. About 60 percent of the children reported having a lesson in nutrition and health, and two-thirds reported having a lesson on exercise and health during the current school year. Many children were responsible for preparing at least some of their own food. Forty-seven percent reported preparing their own after-school snacks, 41 percent made evening snacks, 40 percent fixed breakfasts, and 16 percent prepared lunches.

There are certain limitations to generalizing from the survey data. The validity of the conclusions may be affected by the limited response rate of the sample. These respondents are a “best-case” sample. As a market-research panel, they were composed of stable households, interested in research, and willing to complete the food diary. Other factors also limit the generalizability of the survey. All households were English-speaking. However, the time of year was not a best-case scenario because the study took place in the spring, a time of relatively low seasonal availability of fresh fruits and vegetables.

¹Van Duyn MA. Dietary Guidelines 2000: The case for fruits and vegetables first. Produce for Better Health Foundation, Wilmington, DE, 1999.

Reducing the risk of conditions such as cancer and heart disease may require long-term high intake of protective foods to have the maximum effect. An important factor that positively influences adults to eat fruits and vegetables is the habit of eating them as children.¹ In addition, fruits and vegetables may displace less nutritious foods in the diet.

Major findings

- **Fruit and vegetable intake is very low**
- **Participation in school meal programs increased the consumption of fruits and vegetables**
- **Promotional 5 a Day activities increased awareness and consumption of fruits and vegetables**

What California children are eating

On average, children reported eating 3 servings a day of all fruits and vegetables including french fries. This fails to meet the 5 a Day goal by 2 servings. When fried potatoes were excluded, this figure fell to 2.7. Twenty-one percent reported meeting the overall 5 a Day goal. Only 17 percent of all children reported meeting the goal of consuming 3 servings a day for vegetables, but about half (51 percent) reported meeting the goal of 2 servings a day for fruits. About one child in three reported less than 1 serving of either vegetables or fruits per day.

Differences among children

Several groups of children reported especially low intake at statistically significant levels ($p \leq .05$). Asian/other children averaged only 2.5 servings of fruits and vegetables compared to 3 servings or more from each of the other ethnic groups. Surprisingly, children from homes in the highest income bracket (\$50,000 or more/year) averaged 2.7 servings compared to 3.2 servings in middle and lower income households. It is probable that upper income children, who ate fewer fruits and vegetables, were less frequent users of school meal programs.

Several other factors were associated with a diet lower in fruits and vegetables:

- Physically inactive children ate 2.4 servings compared to 3.1 for those who said they get at least 30 minutes of activity.
- Children who participated in school breakfast consumed at least an entire serving more than those who did not- 4.1 vs. 2.8, with most of the difference from fruit and juice.
- Children who did not participate in school lunch and children who did not have a nutrition lesson averaged 0.5 serving lower in each case than those who did—2.7 vs. 3.2—, with most of the difference from vegetables.
- Children who were overweight or at risk for being overweight ate 2.8 servings compared to 3.1 for normal weight children.

School meals, lessons in nutrition, and physical activity were also important correlates for reported consumption of fruits and vegetables separately. The diary findings show higher consumption of vegetables by children who had eaten school breakfasts, school lunches or had a nutrition lesson. The diary also found greater reported consumption of fruit by children who had eaten school breakfast, had nutrition lessons or were physically active. Examining all independent variables, those who ate school breakfast reported the highest of both fruit and vegetable intakes.

Average Daily Number of Servings of Fruits and Vegetables Eaten by California Children		
	Vegetable Goal ≥ 3	Fruit Goal ≥ 2
All children	1.4	1.6
School breakfast		
Yes	1.8***	2.2***
No	1.3	1.5
School lunch		
Yes	1.5***	1.7
No	1.1	1.6
Nutrition lesson		
Yes	1.5**	1.7*
No	1.2	1.5
Physical activity		
More than 30 minutes	1.4	1.8***
30 minutes or less	1.3	1.0

One-way ANOVA:

*** Difference is statistically significant, $P \leq .001$.

** Difference is statistically significant, $P \leq .01$.

* Difference is statistically significant, $P \leq .05$.

² Krebs-Smith SM, Heimendinger J, Patterson BH, Subar AF, Kessler R, Pivonka E. Psychosocial factors associated with fruit and vegetable consumption. Am J Health Promot 10(2):98-104, 1995.

Fruits and vegetables were eaten most often at lunch (.9 servings) and dinner (1 serving). Children who participated in school breakfast ate about one-half serving more at both breakfast and at lunch than children who did not participate. Fruit and vegetable snacks were disappointingly low, averaging less than one-half serving per child for all snacks throughout the day.

Four of the eleven most frequently eaten fruits were juices rather than high fiber whole fruits: orange, apple, “fruit,” and grape juices. Apples, bananas, oranges, strawberries, applesauce, fruit salad, and peaches were the leading whole fruits children reported eating.

Carrots were the most often reported vegetable consumed, followed by corn, potatoes (not fried), green salad, and green beans. Lettuce/tomato on sandwiches, broccoli, green peas, and tomatoes alone were other leading vegetables. Fried potatoes were not included in this ranking.

Even though it was a “leading” vegetable, in absolute terms, few children ate green salad; only 4 percent averaged at least one daily serving of salad. For very low-income children this figure climbed to 9 percent, a significant difference. Similarly, very few children reported consuming the cruciferous and dark-green vegetables high in phytochemicals that are thought to be protective against cancer.

**California Kids:
Top Ranked Fruits and Vegetables
in Spring, 1999**

Apples	Carrots
Orange juice	Corn
Apple juice	Potatoes (not fried)
Bananas	Green salad
Oranges	Green beans

By comparison, more than 20 percent reported eating potatoes. Of these, 13 percent reported eating fried potatoes, which doubled for African-American children and for those whose families used food stamps. Fried potatoes were eaten more than other forms of potato—three-fourths of all reported potato servings were fried. Children from higher income families were the least likely to have eaten fried potatoes (8 percent).

Knowledge, beliefs and attitudes

Only about one-quarter of the children reported that they were familiar with the *California 5 a Day—Power Play! Campaign*. At the time of the survey, the campaign was operational only in the San Diego, Fresno, Los Angeles, and Sacramento regions.

However, almost half of those children who were aware of the *5 a Day Campaign* believed 5 or more was the correct number of fruit and vegetable servings one should eat for good health. In contrast, only 24 percent of children who were not familiar with the *5 a Day Campaign* had this belief. Children who believed 5 servings were recommended were more likely to eat 5 servings than children who felt fewer were needed or who did not know.

Overall, about one-third of the children believed they were eating the correct amount of fruits and vegetables, while a little over half felt they needed to eat more. Almost 20 percent of California children surveyed believed that they needed only 1 or 2 servings of fruits and vegetables, while 29 percent believed that it was 5 servings, and 15 percent did not know. White children were most likely to correctly identify the goal. Fifth graders, children who had heard about the *5 a Day Campaign*, and children who had a nutrition lesson were more likely to identify 5 servings as the goal than their counterparts.

Even though children reported snacking on fruits and vegetables at relatively low levels, about nine out of ten children “strongly” or “somewhat” agreed with the statement that they wanted to have fruit for an afternoon snack. In particular, more than eight out of ten children from low-income households *strongly agreed* with this statement, more than in any other demographic group.

Parental behavior was perceived to provide a positive environment for eating fruits and vegetables. More than 75 percent of children strongly agreed that their parents buy the types of fruits and vegetables that they like. More than eight out of ten children agreed that their parents eat lots of fruits and vegetables, however, children from the lowest income households and Latino children were more likely than other children to disagree. Children’s perceptions that their parents were eating many fruits and vegetables were at odds with recent *California Dietary Practices Survey* data on adults that showed an average of 3.8 servings per person with only 33 percent eating 5 or more servings a day.

Comparison with other surveys

The Continuing Survey of Food Intake by Individuals (CSFII) is a national, year-round, in-person survey that collects detailed information on foods people eat throughout the United States. Since the CSFII is a face-to-face interview rather than a telephone survey, discrepancy between findings for CSFII and *CalCHEEPS* may reflect differences in data collection methods. Compared to the 1994-96 CSFII, *CalCHEEPS* respondents were reporting much lower consumption of vegetables and about the same amount of fruits. California children were more likely to report eating less than 1 serving a day of vegetables and less likely to report eating 1 serving a day of fruit. Boys, in particular, were less likely than the national sample to report eating the recommended 3 vegetable servings a day, while both boys and girls were about equally likely to eat the recommended 2 daily fruit servings.

Mean Servings of Fruits and Vegetables: United States and California			
	Fruits & Veg	Veg only	Fruit only
Boys			
CSFII, 94-96, ages 6-11	3.8	2.3	1.5
<i>CalCHEEPS 99, ages 9-11</i>	<i>3.1</i>	<i>1.4</i>	<i>1.7</i>
Girls			
CSFII, 94-96, ages 6-11	3.7	2.2	1.5
<i>CalCHEEPS 99, ages 9-11</i>	<i>2.9</i>	<i>1.4</i>	<i>1.6</i>

By ethnicity, California white and Latino children, at 3.0 and 3.1 servings, respectively, reported .8 servings fewer fruits and vegetables than white and Latino children in the national sample. African-American children taking part in CSFII reported 3.6 servings, compared to 3.2 servings in California. Data were not available separately for the Asian/other group from CSFII.

Conclusion and Recommendations

Reported consumption of fruits and vegetables by California children was much lower than expected and than needed for good health. In particular, vegetable intake was poor. Surprisingly, intake by children from high-income households was especially low. These findings are worrisome and potentially set the pace for future trends.

On a more promising note, no disparate findings were identified among ethnic groups, except for the Asian/ other group. Children from low- income households did not report eating fewer servings of fruits and vegetables than those from higher income households did. School meals and nutrition lessons were strong positive predictors for higher fruit/vegetable diets. Children who knew that 5 daily servings were recommended were more likely to report eating a larger number of servings. Nearly half the children prepared their own breakfasts and snacks, opening opportunities for affecting behavior with nutrition education. Even early in the campaign rollout, there was a positive relationship between being aware of the *Power Play!* message and knowing one should eat 5 servings of fruits and vegetables.

Recommendations

1. **Public awareness must be increased about children’s low vegetable and fruit consumption and its impact on their health, including overweight. Media campaigns and outreach to groups such as parent-teacher organizations can be used for broad dissemination of the message.**
2. **Research is needed to learn why intake by Asian/ other children is so low.**
3. **Promotional efforts to help children eat more fruits and vegetables should be increased by schools, caretakers, community groups and the food industry. This would include making vegetables and fruits more readily available at home, in school, and after school.**
4. **Efforts should be made to promote children’s participation in the National School Lunch and Breakfast Programs in order to increase consumption of vegetables and fruits.**
5. **Children’s belief in the importance of eating 5 daily servings of fruits and vegetables must be increased. Participation in the *California 5 a Day—Power Play! Campaign* should be expanded. Memorable, child-tested nutrition lessons should be incorporated into the curriculum and used to satisfy science requirements.**
6. **The National Cancer Institute is urged to use the *National 5 A Day Program* and work with the U.S. Department of Agriculture and the Centers for Disease Control and Prevention to encourage the food industry to vigorously promote fruits and vegetables to children through children’s advertising and new product development. Federal grants to implement additional *5 A Day* projects should be provided by the National Cancer Institute.**

California Children's 5 a Day— Power Play! Campaign



The California Children's 5 a Day—Power Play! Campaign uses a multi-channel, community-based approach to encourage 9, 10, and 11-year-old children and their families to eat at least 5 servings of fruits and vegetables every day as part of a lowfat, high-fiber diet and a physically active lifestyle. Over the 5-year period between 1997 and 2002, the Power Play! Campaign aims to increase fruit and vegetable consumption among fourth and fifth graders with a comprehensive educational program that will reach 450,000 of California's 900,000 pre-teens. Community coalitions in each of ten regions will work together to reach the community with the 5 a Day—Power Play! message. Each coalition is comprised of representatives from schools, community youth organizations, farmers' markets, supermarkets, food services/restaurants, mass media and other organizations.

Power Play! Regional Roll-Out:

1998-99	Fresno, Sacramento, and San Diego
1999	Los Angeles
2000	Inland Empire, Orange County, and Tri-County/Kern
2001	North/East San Francisco Bay, South San Francisco Bay, and North State

Co-sponsors:

- California Department of Education
- American Cancer Society
- California Department of Food and Agriculture
- Over 60 other organizations

Funding:

The California Endowment and the U.S. Department of Agriculture, Food Stamp Nutrition Education

1-888-EAT-FIVE
<http://www.ca5aday.com>

American Cancer Society



The American Cancer Society, California Division, views with alarm the low fruit and vegetable consumption reported by 9-to-11 year- old children in this important new survey. The American Cancer Society's dietary guidelines call for moving towards a plant-based diet with plenty of fruits and vegetables, and in no case fewer than 5 daily servings. The Society's research has consistently shown a striking correlation between reduced risk of cancer and high consumption of fruits and vegetables. Also, lifelong eating behavior is developed early in childhood. For these reasons, the American Cancer Society has partnered with the Department of Health Services' 5 a Day Power Play Campaign since 1993 to reach fourth and fifth graders with the important 5 a Day and exercise messages.

Every April (since 1994), the American Cancer Society has sponsored a special Power Play! outreach effort throughout the state in partnership with the California Department of Health Services and the California Department of Education. This year "Spring Into Health Day" will be held on Wednesday, April 12 when fourth and fifth graders throughout California will be asked to pledge to eat at least 5 servings of fruits and vegetables and to have fun being physically active for a minimum of 30 minutes on that day. Parents or caregivers are asked to support their children in this healthy endeavor on "Spring Into Health Day" and throughout the year.

For more information about "Spring Into Health Day," contact the American Cancer Society.

1-800-ACS-2345
<http://www.cancer.org>

